

AMENDMENTS TO THE CLAIMS

1.(currently amended): A network for forming a VPN on a shared network and communicating via the VPN, comprising:

a core network of the VPN formed by an MPLS (Multi-Protocol Label Switch) network;

access networks formed by VLANs to access said core network; and

edge routers provided at edges of the MPLS network for interfacing said MPLS network and the VLANs, wherein

each of said edge routers includes

a first table for storing correspondence between VLAN identifiers (VIDs) contained in VLAN packets and VPN labels contained in MPLS packets;

a second table for storing correspondence between an address of each edge router which constructs said VPN and is connected to a VLAN, and an address of a VLAN-compatible device which constructs the VLAN and is connected to the edge router;

means for finding a VPN label, which corresponds to a VLAN identifier (VID) of a VLAN packet, from said first table;

a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and

a ~~second~~ third table for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers;

means for finding a receive-side edge router corresponding to a destination of a packet from the second table based upon the destination address of a VLAN-compatible device

contained in the VLAN packet and finding a forwarding label, which corresponds to the receive-side edge router, from said ~~second~~ third table;

a MPLS packet generation means for generating an MPLS packet that contains said VPN label and said forwarding label and sending this MPLS packet to the MPLS network;
and

means for finding a VID, which corresponds to a VPN label contained in an MPLS packet received from the MPLS network, from said first table, generating a VLAN packet having this VID and sending this VLAN packet to a VLAN indicated by this VID.

Claims 2-4. (cancelled)

5.(currently amended): The network according to claim 1, wherein an edge router which constructs the VPN and is connected to a VLAN sends another edge router an address set composed of an address of a VLAN-compatible device connected to the first-mentioned edge router and the address of this edge router, and each edge router creates ~~a routing~~ said second table based upon the received information; and

said transmit-side edge router finds a receive-side edge router, which corresponds to the destination of the packet, from said ~~routing~~ second table.

6.(original): The network according to claim 5, wherein an edge router transmits no address information to an edge router to which is connected a VLAN that has been prohibited from communicating.

7.(previously presented): The network according to claim 1, wherein said transmit-side edge router discards a VLAN packet having a VID value that is greater than a set value.

8.(currently amended): A network for forming a VPN on a shared network and communicating via the VPN according to claim 1, comprising:

~~a core network of the VPN formed by a label switching network;~~

~~access networks formed by VLANs to access said core network; and~~

~~interface devices provided at edges of the label switching network for interfacing said label switching network and the VLANs;~~

~~wherein said interface devices are edge routers provided at edges of an MPLS (Multi-Protocol Label Switch) network serving as said label switching network, said edge routers including:~~

~~a transmit-side edge router for converting a packet, which is sent from a VLAN, to an MPLS packet and transmitting the packet to the MPLS network; and~~

~~a receive-side edge router for converting the MPLS packet, which has been received from the MPLS network, to a VLAN packet and directing the VLAN packet to a VLAN that belongs to the same VPN as that of a VLAN on the transmit side, and~~

wherein ~~a~~ said transmit-side edge router inserts user priority information, which is contained in a tag of a VLAN packet, into a label of an MPLS network, and ~~a~~ said receive-side edge router inserts IP precedence information, which is contained in the label of an MPLS packet, into the tag of a VLAN packet as user priority information of the VLAN.

9.(currently amended): An edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, comprising:

a first table for storing correspondence between VLAN identifiers (VIDs) contained in VLAN packets and VPN labels contained in MPLS packets;

a second table for storing correspondence between an address of each edge router which constructs said VPN and is connected to a VLAN, and an address of a VLAN-compatible device which constructs the VLAN and is connected to the edge router;

means for finding a VPN label, which corresponds to a VLAN identifier (VID) of a VLAN packet, from said first table;

a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and

a second table for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers;

means for finding a receive-side edge router corresponding to a destination of a packet from the second table based upon the destination address of a VLAN-compatible device contained in the VLAN packet and finding a forwarding label, which corresponds to the receive-side edge router, from said ~~second~~ third table;

an MPLS packet generating unit for generating an MPLS packet that includes said VPN label and said [[a]] forwarding label and sending this MPLS packet to the MPLS network;
and

means for finding a VID, which corresponds to a VPN label contained in an MPLS packet received from the MPLS network, from said first table, generating a VLAN packet having this VID and sending this VLAN packet to a VLAN indicated by this VID.

10.(cancelled)

11.(currently amended): The edge router according to claim [[10]] 9, wherein said MPLS packet generating unit receives from edge routers which are connected to other VLANs constituting said VPN, information comprising a combination of addresses of these edge routers and addresses of VLAN-compatible devices connected to these edge routers, creates ~~a routing~~ said second table based upon said received information and finds said receive-side edge router, which corresponds to the destination of the packet, from said ~~routing~~ second table.

12-15.(cancelled)